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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/469,070	12/21/1999	HANNA E. WITZGALL	TI-23879	4488
23494	7590	04/28/2006	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			ABDULSELAM, ABBAS I	
			ART UNIT	PAPER NUMBER
			2629	

DATE MAILED: 04/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/469,070	WITZGALL, HANNA E.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Abbas I. Abdulselam	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 21 February 2006.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 1-6 and 10 is/are allowed.
- 6) Claim(s) 7-9 and 11-13 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                    | Paper No(s)/Mail Date: _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION*****Response to Arguments***

1. Applicant's arguments with respect to claims 7-9 and 11-13 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues that the cited reference, Taketo et al. (Japanese Publication # 10221710) does not teach, an amended claim limitation, voltage being applied to alter a refractive index of the dielectric material between the electrodes with respect to achieving primary colors.

However, as shown in the art rejection below, Taketo teaches setting of dichroic mirrors (27G, 27R and 27B) with respect to dielectric multi-layers and reflected wave length filed such that ZrO<sub>2</sub> etc. can be used as a high refractive index film and MgF<sub>2</sub> etc. can be used as a low refractive index film and each film is formed with electron beam deposition (see page 8, the first four lines under "detailed Description")

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize Taketo's high and low refractive index films with respect to application of reflected wavelength filed as illustrated in Fig. 1 for the purpose of deriving the three colored lights (1G, 1R, 1B) as taught by Taketo.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taketo et al. (Japanese Publication # 10221710).

Regarding claim 7, Taketo teaches a color modulator (see the abstract, light control elements (10G, 10R, 10B)) comprising a substrate; and (see the abstract, a substrate 11 or 12) alternating layers of electrodes and dielectric materials (pixel electrodes, (21, 22), and light control layers (23M, 23 C, 23 Y) which contain dielectric multilayer film) wherein voltages applied to said electrodes are operable to filter an incident white beam of at least one of at least three colors (see the abstract, light control layers (23M, 23C, 23 Y) also contain dichroic mirrors (27G, 27R and 27B) whose reflection wavelength regions are made of respective green red and blue. Also see under “Detailed description”, page 9, 71<sup>st</sup> & 72<sup>nd</sup> paragraphs).

Taketo does not specifically teach voltage being applied to alter a refractive index of the dielectric material between the electrodes with respect to achieving primary colors.

However, as shown in the art rejection below, Taketo teaches setting of dichroic mirrors (27G, 27R and 27B) with respect to dielectric multi-layers and reflected wave length filed such that ZrO<sub>2</sub> etc. can be used as a high refractive index film and MgF<sub>2</sub> etc. can be used as a low refractive index film and each film is formed with electron beam deposition (see page 8, the first four lines under “detailed Description”)

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize Taketo’s high and low refractive index films with respect

to application of reflected wavelength filed as illustrated in Fig. 1 for the purpose of deriving .the three colored lights (1G, 1R, !B) as taught by Taketo.

Regarding claim 9, Taketo teaches electrodes formed of Indium Tin Oxide (under “Detailed Description”, page 7, 60<sup>th</sup> paragraph, ITO).

Regarding claim 11, Taketo teaches the color modulator wherein said voltages applied to said electrodes are operable to filter an incident white light beam into a light beam sequentially comprised of at least three colors (see the abstract, light control layers (23M, 23C, 23 Y) also contain dichroic mirrors (27G, 27R and 27B) whose reflection wavelength regions are made of respective green red and blue. Also see under “Detailed description”, page 9, 71<sup>st</sup> & 72<sup>nd</sup> paragraphs).

3. Claims 8 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taketo et al. (Japanese Publication # 10221710) in view of Mochizuki et al (USPN 5317429).

Regarding claim 12, Taketo teaches a color modulator (see the abstract, light control elements (10G, 10R, 10B)) comprising a substrate; and (see the abstract, a substrate 11 or 12) alternating layers of electrodes and dielectric materials (pixel electrodes, (21, 22), and light control layers (23M, 23 C, 23 Y) which contain dielectric multilayer film) wherein voltages applied to said electrodes are operable to filter an incident white beam of at least one of at least three colors (see the abstract, light control layers (23M, 23C, 23 Y) also contain dichroic mirrors (27G, 27R and 27B) whose

reflection wavelength regions are made of respective green red and blue. Also see under “Detailed description”, page 9, 71<sup>st</sup> & 72<sup>nd</sup> paragraphs).

Taketo does not teach dielectric material being selected from the group consisting of LiNbO<sub>3</sub>, LiTaO<sub>3</sub>, NH<sub>4</sub>H<sub>2</sub>PO<sub>4</sub>, KH<sub>2</sub>PO<sub>4</sub> and CdTe.

Mochizuki on the other hand teaches a cladding layer, which may be any material whose refractive index can be changed by the electro-optical effect and is, for example, a ferroelectric substance such as LiNbO<sub>3</sub> (col. 4, lines 43-50)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Taketo’ display system shown in Drawing 1, to adapt Mochizuki’s layer, LiNbO<sub>3</sub> as a dielectric layer because the use of layer, LiNbO<sub>3</sub> helps function a liquid crystal display device as taught by Mochizuki (col. 6, lines 5-20).

Regarding claim 8, Mochizuki as mentioned above teaches a cladding layer, which may be any material whose refractive index can be changed by the electro-optical effect and is, for example, a ferroelectric substance such as LiNbO<sub>3</sub> (col. 4, lines 43-50).

Regarding claim 13, Taketo teaches electrodes formed of Indium Tin Oxide (under “Detailed Description”, page 7, 60<sup>th</sup> paragraph, ITO).

### *Allowable Subject Matter*

4. Claims 1-6 and 10 allowed.

### *Conclusion*

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abbas I. Abdulselam whose telephone number is (571) 272-7685. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe can be reached on (571) 272-7691. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you

have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Abbas Abdulselam

Examiner

Art Unit 2629

April 25, 2006



RICHARD HJERPE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600